**CANADA EXCELLENCE RESEARCH CHAIRS PROGRAM**

**PHASE 2 NOMINATION**

**Curriculum Vitae Form**

**Nominating Institution:** Concordia University

**Title of CERC:** Canada Excellence Research Chair in Smart, Sustainable and Resilient Communities and Cities

**Academic Background**

List your academic and professional experience beginning with the most recent.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Degree** | **Year** | **Discipline/Field** | **Institution** | **Country** |
| Habilitation | 2011 | Renewable energies and building technology | Technical University Berlin, Department of Process Engineering | Germany |
| PhD | 1986-89 | Solid state physics | Heriot Watt University, Department of Physics, Edinburgh | Great Britain |
| Diploma | 1982-86 | Physics | Technical University Berlin and Gutenberg University Mainz | Germany |

**Experience (academic, research, professional and industrial)**

List your work experience beginning with the current or most recent position.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Position Held and**  **Institution/Organization** | **Department/Faculty** | **Country** | **Period (Year)** | |
| **From** | **To** |
| Professor of Building Physics and Sustainable Energy Technology/ University of Applied Sciences Stuttgart - HFT | Faculty of Civil Engineering, Building Physics and Economics | Germany | 1993 | Present |
| Head of the Center for Applied Research Sustainable Energy Technology zafh.net/ HFT | - | Germany | 1993 | Present |
| Head of the Center of Applied Research Energy Systems and Resource Efficiency ENsource/ HFT | - | Germany | 1993 | Present |
| Head of the Institute for Applied Research of the HFT Stuttgart | - | Germany | 1993 | Present |
| Scientist/ Centre for Solar Energy and Hydrogen Research Baden Württemberg | Department of photovoltaic system technology | Germany | 1991 | 1993 |
| Process engineer/ Solems/ Phototronics | - | France | 1989 | 1991 |

**Research Support**

List sources of research support over the last five years, either held (A) or currently applied for (B), either as an applicant or co-applicant.

List grants and contracts from all sources, including industry and academic research institutions.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Title of Project and**  **Family Name and Initial(s)**  **of Principal Applicant** | **Role in Project (e.g., principal investigator, co-principal investigator, co-applicant, lead, etc.)** | **Funding Source and Program** | **Amount Per Year** | **Status (A or B)** | **Years of Tenure** | |
| **From** | **To** |
| M4\_LAB HFT: Innovation laboratory for the Stuttgart metropolitan region;  U. Eicker | principal investigator | Federal Ministry of Education and Research (BMBF, Germany); Innovative University | 2,001,538.5€ | A | 2018 | 2022 |
| INTENSE: Integration of renewable energies in decarbonised local energy systems;  U. Eicker | principal investigator | Federal Ministry of Education and Research (BMBF, Germany); Guidelines for promotion and innovation Horizon 2020 with  Partners from North and South America | 58,207.29 € | A | 2018 | 2019 |
| IN-SOURCE:  Integrated analysis and modeling for the management of sustainable urban FWE ReSOURCEs;  U.Eicker | principal investigator | Federal Ministry of Education and Research (BMBF) / JPI Europe /  Belmont Forum; Sustainable Urbanisation Global Initiative; Food-Water-Energy (FWE) Nexus | 124,065.68 € | A | 2018 | 2020 |
| PVT-Resyst:  The Adaptability of PhotoVoltaic-Thermal Collectors to Increase the Share of REnewable Energy Production for Heating-, Cooling-, and Electric-Energy in Systems of Buildings: - Potentials and Challenges of novel PVT Technology and the local Market Entry in Egypt; U.Eicker | principal investigator | Federal Ministry of Education and Research (BMBF; German-African Innovation Award | 74,996.4 € | A | 2018 | 2020 |
| CIGS-Fassade: Facade integrated Photovoltaic with CIGS technology; U.Eicker | principal investigator | Federal Ministry of Economics and Technology (BMWi); Zentrales Innovationsprogramm Mittelstand (ZIM) | 38,554.66 € | A | 2017 | 2020 |
| CITYtrans: Energy efficient city transformation - building up a bilateral network to develop 3D urban model planning tools, zero-carbon strategies, integration of renewables, transformation and optimization of urban energy systems; U.Eicker | principal investigator | Federal Ministry of Education and Research (BMBF); funding for marketing measures “City of the Future” in the target countries of China, USA, India, Vietnam and Colombia within the framework of the “Promoting Innovation in Germany” initiative | 99,996.75 € | A | 2017 | 2018 |
| EcoRZ: Sustainable Data Centers; U. Eicker | principal investigator | Ministry of the Environment, Climate Protection and the Energy Sector Baden-Württemberg; BWPLUS funding program (Baden-Wuerttemberg Research Program Securing a Sustainable Living Environment) | 45,198.95 € | A | 2017 | 2020 |
| EnVisaGePlus: Communal net based energy supply– Vision 2020 on the example of the Community Wüstenrot, project phase III. Monitoring, control optimization and further analyses and implementations for a smart electricity grid and new built district heating systems;  U. Eicker | principal investigator | Federal Ministry of Economics and Technology (BMWi); Research for energy efficient cities – Building and Energy supply | 358,103.5 € | A | 2017 | 2019 |
| i\_city-Impulsprojekt: Leading project intelligent city: Energy, information, urban development, building, mobility, participation; U. Eicker | principal investigator | Federal Ministry of Education and Research (BMBF); Research at Universities of Applied Sciences | 1,301,242.11€ | A | 2017 | 2021 |
| i\_city-Management: Smart city Management project to long-term establish HFT's smart city research in the Stuttgart Metropolitan Region; U. Eicker | principal investigator | Federal Ministry of Education and Research (BMBF); Research at Universities of Applied Sciences | 125,437.10 € | A | 2017 | 2020 |
| i\_city-MUSI:  Multi-scale Urban Scenario Interface; U. Eicker | Co-principal investigator | Federal Ministry of Education and Research (BMBF); Research at Universities of Applied Sciences | 84,425.54 € | A | 2017 | 2020 |
| SimStadt 2.0:  3D Simulation of urban Energy Sytems; U. Eicker | Co-principal investigator | Federal Ministry of Economics and Technology (BMWi); Application-oriented non-nuclear R & D | 287,807.66 € | A | 2017 | 2020 |
| Windy Cities; U. Eicker | Co-principal investigator | Federal Ministry for Science, Research and Art (MWK); scholarship for students | 37,666.66 € | A | 2017 | 2020 |
| Seed funding EU-Projekt “CityDem”; U. Eicker | principal investigator | Coordinating Office of Research and Development of the Universities of Applied Sciences Baden-Württemberg (MWK); Start-up funding for the application in the European research program Horizon 2020 | 5,000 € | A | 2017 | 2017 |
| Seed funding EU-Projekt, “IN-SOURCE“; U. Eicker | principal investigator | Coordinating Office of Research and Development of the Universities of Applied Sciences Baden-Württemberg (MWK); Start-up funding for the application in the European research program Horizon 2020 | 4,800 € | A | 2017 | 2017 |
| Research scientist support program for Center of Sustainable Energy Technology | principal investigator | Ministry of Science and Education Baden-Württemberg (MWK); | 143,550 € | A | 2017 | 2019 |
| Urban Energy Systems for Zero-carbon Cities;  International collaboration and partnership Stuttgart - New York; U.Eicker | principal investigator | German Research Foundation (DFG); Building international cooperation | 12,000 € | A | 2016 | 2017 |
| ENRES: Graduate School Energy Systems and Resource Efficiency;  U. Eicker | Co-principal investigator | Federal Ministry for Science, Research and Art (MWK); Cooperative doctoral colleges of universities and  Universities of Applied Sciences | 21,463.60 € | A | 2016 | 2019 |
| Sim4Blocks: Simulation Supported Real Time Energy Management in Building Blocks; U. Eicker | principal investigator | European Union Horizon 2020; Demand response in  blocks of buildings | Total: 1,390,839 €  HFT Stuttgart:  153,383.25 € | A | 2016 | 2020 |
| Energy optimisation of University Campus buildings; U. Eicker | principal investigator | Ministry of Environment, Climate and Energy, Baden Wuerttemberg | 500,000 € | A | 2015 | 2016 |
| ENsource: Center of applied resarch urban energy systems and ressource efficiency; U. Eicker | principal investigator | Federal Ministry for Science, Research and Art (MWK); European Regional Development Fund - ERDF (L-Bank) | 135,813.33 € | A | 2015 | 2018 |
| 3% refurbishment strategies – planning energy efficiency measures in urban districts 2050;  U. Eicker | principal investigator | Federal Ministry of Economics and Technology (BMWi); Funding initiative: Energy Efficient City | 145,839.33 € | A | 2015 | 2018 |
| DiReg: Regeneration process for liquid sorbents;  U. Eicker | principal investigator | Federal Ministry of Education and Research (BMBF); Research at universities of applied sciences | 117,118 € | A | 2015 | 2018 |
| EnSign: Real laboratory for a climate-neutral downtown campus; U. Eicker | principal investigator | Federal Ministry for Science, Research and Art (MWK); Real laboratories for research for sustainability  in Baden-Wurttemberg | 479,880 € | A | 2015 | 2017 |
| CHILLIIMON: Concept development, test and simulation-based optimization of the MSR module; U. Eicker | principal investigator | Federal Ministry of Economics and Technology (BMWI), ZIM program | 83,800 € | A | 2015 | 2017 |
| EFFICESTORE: Concept development, experimental investigations and modeling of ice storage prototypes;  U. Eicker | principal investigator | Federal Ministry of Economics and Technology (BMWI), ZIM program | 116,666,66 € | A | 2015 | 2018 |
| FLEXYNETS: Fifth generation, low temperature, high EXergY district heating and cooling NETworkS; | principal investigator | European Union, Horizon 2020 | 97,875 € | A | 2015 | 2018 |
| PVT Ägypten NightCool | principal investigator | Federal Ministry of Education and Research (BMBF); 3rd common call of Technology Development Funds of the Arabian Republic Egypt | 99,891.60 € | A | 2015 | 2016 |
| SIMBLOCK: Simulation Supported Real-time Energy Management in Building Blocks; U. Eicker | principal investigator | Federal Ministry of Education and Research (BMBF) | 24,881 € | A | 2014 | 2015 |
| EnSign: Real-Lab for a climate neutral campus in the city, proposal development grant;  U. Eicker | principal investigator | Federal Ministry for Science, Research and Art (MWK); Living Labs for research in sustainability in Baden-Württemberg | 25,838.20 € | A | 2014 | 2014 |
| WeBest: Web-based simulation of the energetic condition of buildings for house owners;  U. Eicker | Co-principal investigator | Federal Office for Agriculture and Food (BLE);  Promotion of innovation  in energy services | 41,699.45 € | A | 2013 | 2016 |
| Ligtht+Air: Plus-Energyhouse of the prototype group Light+Air in Tübingen Lustnau;  U. Eicker | principal investigator | Federal Office of Building and Regional Planning; Future construction | 82,368,76 € | A | 2013 | 2015 |
| GREENFOODS: Towards Zero fossil CO2 emission in the European food and beverage industry in short;  U. Eicker | principal investigator | European Commission;  Intelligent Energy Europe | 50,979 € | A | 2013 | 2015 |
| KonLuft; controlled natural ventilation in non-residential buildings  U. Eicker | principal investigator | Federal Ministry of Economics and Technology | 125,949 € | A | 2013 | 2016 |
| Plus-Energy-House-home+; U. Eicker | Co-principal investigator | Federal Ministry of Economics and Technology | 22,0977.46 € | A | 2013 | 2015 |
| Barockstadt: Sustainable, energetic district concept for the baroque inner city of the city of Ludwigsburg;  U. Eicker | Co-principal investigator | Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR); Special Energy and Climate Fund: National Climate Initiative | 69,500 € | A | 2013 | 2014 |
| SoFt: Double membrane construction with low-e coating for a translucent roof over the construction of a sports center in Fürth;  U. Eicker | Co-principal investigator | Federal Ministry of Economics and Technology (BMWI) | 78,874.82 € | A | 2013 | 2016 |
| IEA Task 51: studies on the use of solar energy in Germany | principal investigator | solar energy in the Urban context including IEA cooperation Task 51 | 21,359.31 € | A | 2013 | 2016 |
| EffBioKWK: Increase in efficiency of biomass lighted cogeneration facilities:Part-Project 1: Development and testing of the regulation concept | principal investigator | German Federal Ministry for Agriculture and Food (BMELV); Energy and climate fund | 54,912.5 € | A | 2013 | 2016 |
| CI-NERGY:  Smart cities with sustainable energy systems | principal investigator | European Commission; Marie Curie Fp7-People | Total:  930,639 €  HFT Stuttgart: 238,554.75 € | A | 2013 | 2017 |

**Research Training**

Indicate the number of highly qualified personnel (HQP) that you have supervised or co-supervised over the past five (5) years.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Supervised** | **Co-supervised** | **Total** |
| **Undergraduate** | 10 | 7 | 17 |
| **Master’s** | 29 | 11 | 40 |
| **Doctoral** | 3 | 12 | 15 |
| **Postdoctoral** | 5 |  | 5 |
| **Other** |  |  |  |
| **Total** | 37 | 30 | 77 |

Based on the aggregate information above, provide details about the individuals you have supervised or co-supervised during the **five years prior** to this submission. Please include the type of HQP training (e.g., undergraduate, master’s, technical, etc.), status of trainee (completed, in progress, incomplete), number of years supervised or co-supervised, the research area of the project, and the individual’s immediate position once their training with you was completed. There is no limit to the number of entries.

Based on the federal [Privacy Act](http://laws-lois.justice.gc.ca/eng/acts/p-21/)rules governing the collection of personal information, the names of the students are **not** requested, and identifying information should **not** be included.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Row #** | **Type of HQP Training** | **Status**  **(Completed, In Progress or Incomplete)** | **Total Years Supervised or Co-Supervised** | **Research Area** | **Position Obtained Immediately Following Training** |
|  | | | | | |
| 1 | PostDoc | Completed | 3 | Controlled natural ventilation in non residential buildings | Research Scientist |
| 2 | PostDoc | Completed | 3 | Urban heat demand modeling | City senior energy advisor |
| 3 | PostDoc | Completed | 2 | Ice storage for heat pums applications | Group leader Fraunhofer Research center |
| 4 | PostDoc | Completed | 3 | Urban energy simulations | Research funding coordinator at Steinbeis Europe Center |
| 5 | PostDoc | Completed | 5 | Net zero energy city quarters | Managing director Central Research Unit |
| 6 | PhD | In progress | 2 | System integration of wind power into local energy systems with power-to-gas and reactive hydrogen batteries |  |
| 7 | PhD | In progress | 2 | Intelligent control and load management in local and municipal context |  |
| 8 | PhD | In progress | 1 | Sustainable and resource efficient local energy systems |  |
| 9 | PhD | In progress | 2 | Decision-making for municipal energy transition scenarios with consideration of green infrastructure in urban landscapes |  |
| 10 | PhD | In progress | 2 | Energy and resource efficiency in urban development concepts |  |
| 11 | PhD | In progress | 3 | Impact of behaviour on urban energy system performance |  |
| 12 | PhD | In progress | 4 | Physical Modelling of Subsystems in Urban Quarters |  |
| 13 | PhD | In progress | 4 | Development of collector / regenerators for liquid sorption plants |  |
| 14 | PhD | In progress | 2 | Impact of PV battery storage systems on the electricity market |  |
| 15 | PhD | In progress | 2 | Impact of renewable energy sources in the European electricity generation mix on the safety and operation of transmission grids |  |
| 16 | PhD | In progress | 3 | Regional added value through the energetic use of biomass, |  |
| 17 | PhD | Completed in 2017 | 4 | Advanced controls of solar driven adsorption chillers | Head of sorption system group at Fraunhofer Institute for Interfacial Engineering and Biotechnology |
| 18 | PhD | Completed in 2015 | 4 | A methodology for planning with different analysis tools and case-study integration | Consultant and engineer for Geo En Incorporation |
| 19 | PhD | Completed in 2015 | 4 | Simulation based analysis and optimisation of biomass powered ORC cogeneration units | Research Scientist at University of Applied Sciences |
| 20 | PhD | Completed in 2013 |  | Influence of operating parameters on the efficiency of district heating networks | Research Scientist at University of Applied Sciences |
| 21 | Master’s | Completed in 2018 | 0,5 | Development of a design tool for dimensioning a snow machine based on a regeneratively driven steam jet chiller | Researcher at Fraunhofer Institute UMSICHT, Oberhausen |
| 22 | Master’s | Completed in 2018 | 0,5 | Energy and economic evaluation of cross-trade and energy-efficient room automation | Engineer at Bosch facility management |
| 23 | Master’s | Completed in 2018 | 0,5 | Investigations on a low pressure refrigeration system with alternative refrigerants |  |
| 24 | Master’s | Completed in 2018 | 1 | Urban energy simulations using 3D models | Engineer at Audi Company |
| 25 | Master’s | Completed in 2018 | 1 | Inverse and forward modeling of buildings |  |
| 26 | Master’s | Completed in 2017 | 0,5 | Development of a billing solution for self-consumption of solar electricity as a digital business model | Engineering Consultant Switzerland |
| 27 | Master’s | Completed in 2017 | 0,5 | Potential analysis of demand-driven domestic ventilation using simulations |  |
| 28 | Master’s | Completed in 2017 | 0,5 | Sector coupling in the energy transition- assessment of the energy industry and modeling of the energy system of the future of the state of Thuringia | Energy consultant at Fichtner Engineering |
| 29 | Master’s | Completed in 2016 | 1 | Metrological examination, analysis and optimization of the operating behavior of a plus energy apartment building |  |
| 30 | Master’s | Completed in 2016 | 1 | Macroeconomic analysis of the interaction of the production and acceptance system in the district heating network of SWBB with different expansion scenarios | Engineer at energy supply company |
| 31 | Master’s | Completed in 2016 | 0,5 | Improved absorber for the medium temperature range in solar thermal systems | Engineer in SME |
| 32 | Master’s | Completed in 2016 | 1 | Life cycle assessment of city quarters refurbishment | Doctoral student at HFT /KIT |
| 33 | Master’s | Completed in 2016 | 1 | Life cycle assessment of buildings comparing demolition and reconstruction with refurbishment | Doctoral student at TU Munich |
| 34 | Master’s | Completed in 2016 | 0,5 | Mathematical modeling and validation of a heat exchanger in ice storage systems | Researcher at DLR Germany |
| 35 | Master’s | Completed in 2016 | 0,5 | Dynamic classification of the urban area of Stuttgart for efficient heat supply under economic, technical and ecological aspects | Research Scientist at Energy Supply Company |
| 36 | Master’s | Completed in 2016 | 1 | On the use of 3D models for regional climate concepts |  |
| 37 | Master’s | Completed in 2016 | 0,5 | Evaluation of an ice rink energy management concept comprising CO2 refrigeration | Doctoral student at DTU Denmark |
| 38 | Master’s | Completed in 2016 | 0,5 | Financing strategies for the implementation of renewable energy and energy efficiency measures in public buildings |  |
| 39 | Master’s | Completed in 2015 | 0,5 | Supply concepts for long-lasting and nationwide power outages for municipalities using the example of the municipalities of Kronau, Ötigheim and Steinmauern | Engineer at RBS Wave |
| 40 | Master’s | Completed in 2015 | 1 | PVT collectors for the removal of industrial waste heat |  |
| 41 | Master’s | Completed in 2015 | 0,5 | Refrigration for supermarkets | Engineer at Viessmann Ice Storage Systems |
| 42 | Master’s | Completed in 2015 | 0,5 | Batteries for virtual power plants |  |
| 43 | Master’s | Completed in 2015 | 1 | 3D city modelling for heat demand analysis | Research Associate at HFT |
| 44 | Master’s | Completed in 2015 | 1 | Solar supported CHP in food logistics | Research Associate at HFT |
| 45 | Master’s | Completed in 2015 | 1 | Geothermal energy for heating and cooling of a new university building |  |
| 46 | Master’s | Completed in 2015 | 1 | Radiant cooling using PVT collectors using the example of a data center | Consulting engineer |
| 47 | Master’s | Completed in 2015 | 1 | optimal system configuration of office buildings with solar air conditioning at different locations worldwide | Managing director of zafh.net research center |
| 48 | Master’s | Completed in 2015 | 0,5 | Development of a upwind turbine from industrial ventilation | Project manager at Colt international |
| 49 | Master’s | Completed in 2014 | 1 | Simulation of solar process heat |  |
| 50 | Master’s | Completed in 2014 | 1 | Modeling and simulation of grid connection PV system with storage |  |
| 51 | Master’s | Completed in 2014 | 0,5 | simulation of adsorption chillers | PhD student at TU Munich |
| 52 | Master’s | Completed in 2014 | 1 | Simulation-based optimization of a decentralized energy supply concept consisting of heat pump, PV and electrical and thermal storage | PhD student at HFT / University of Stuttgart |
| 53 | Master’s | Completed in 2013 | 0,5 | Comparative simulations of groundwater flow in porous soil layers |  |
| 54 | Undergraduate | In progress 2018 | 0,3 | Investigation of future heat production costs for solar local heat and solar process heat |  |
| 55 | Undergraduate | Completed in 2017 | 0,3 | Potential of a solar cooling system in 3 different Greek locations |  |
| 56 | Undergraduate | Completed in 2017 | 0,3 | Analysis of facade surface temperatures for the determination of rehabilitation status of buildings |  |
| 57 | Undergraduate | Completed in 2017 | 0,3 | Comparison of different calculation methods of building heating demand at district level | Master student |
| 58 | Undergraduate | Completed in 2016 | 0,3 | Development and commissioning of a test bench to determine the extraction capacity of horizontal geothermal absorbers with icing effects |  |
| 59 | Undergraduate | Completed in 2016 | 0,3 | Withdrawal rate of horizontal geothermal absorbers in soil layers with groundwater flow, |  |
| 60 | Undergraduate | Completed in 2016 | 0,3 | Building heat pump use in negative secondary reserve markets | Master student |
| 61 | Undergraduate | Completed in 2016 | 0,3 | Determination of the refurbishment status of facades by infrared thermography |  |
| 62 | Undergraduate | Completed in 2016 | 0,3 | Investigation of the efficiency of natural ventilation in different type buildings by means of long-term data acquisition and modeling |  |
| 63 | Undergraduate | Completed in 2016 | 0,3 | Development and analysis of control strategies to optimize controlled  natural ventilation |  |
| 64 | Undergraduate | Completed in 2015 | 0,3 | Hybrid ventilation for lecture theaters |  |
| 65 | Undergraduate | Completed in 2015 | 0,3 | Energy saving potential through innovative lighting technology | Master student |
| 66 | Undergraduate | Completed in 2014 | 0,3 | Methods for the preparation of climate protection concepts |  |
| 67 | Undergraduate | Completed in 2013 | 0,3 | Infrared thermography for the analysis of refurbishment conditions of buildings |  |
| 68 | Undergraduate | Completed in 2013 | 0,3 | Building automation in plus energy houses |  |
| 69 | Undergraduate | Completed in 2013 | 0,3 | Financing energy efficiency through contracting |  |
| 70 | Undergraduate | Completed in 2013 | 0,3 | The use of surplus electricity from mini cogeneration units in a semi-detached house |  |